

microAeth[®] Model AE51 Aethalometer[®]



Measurement Principle

Real-time analysis by measuring the rate of change in absorption of transmitted light due to continuous collection of aerosol deposit on filter. Measurement at 880 nm interpreted as concentration of Black Carbon ('BC').

Measurement Range

0-1 mg BC/m³, filter life time dependent on concentration and flow rate setting:
avg. 5 µg BC/m³ for 24 hours @ 100 ml/min
avg. 100 µg BC/m³ for 3 hours @ 50 ml/min
avg. 1 mg BC/m³ for 15 minutes @ 50 ml/min

Measurement Resolution

0.001 µg BC/m³

Measurement Precision

±0.1 µg BC/m³, 1 min avg., 150 ml/min flow rate

Measurement Timebase (User setting)

1, 10, 30, 60, or 300 seconds

Flow Rate (User setting)

Internal pump provides 50, 100, 150, or 200 ml/min, monitored by mass flow meter and stabilized by closed-loop control.

Sampling

3 mm spot created on filter strip containing insert of T60 Teflon-coated borosilicate glass fiber filter material. PM2.5 size selective inlet available.

Consumables

Filter strip: 1 filter strip per sampling event, typically one per day. High concentration sampling may require more than one filter per day.

Data Storage

4 MB internal flash memory, providing up to 1 month data storage when operating on a 300 second timebase, and 1 week when operating on a 60 second timebase.

Communications

USB connectivity to Windows[®]-based PC with microAethCOM.

Data Output

Internal data files are uploaded to microAethCOM PC software and stored on local disk.

PC Software

microAethCOM software is included. Provides visual interface including real-time BC mass concentration values. Facilitates settings configuration, calibration routines, downloading data, and uploading new instrument firmware.

Dimensions

4.6 in (117 mm) L x 2.6 in (66 mm) W x 1.5 in (38 mm) D

Weight

Approximately 0.62 lbs (280 g).

Power

Internal rechargeable lithium-ion battery.

Power Supply Adapter

Input: 100~240 VAC 50/60 Hz 0.2 A
Output: 5VDC / 0.5A

Charging Time

4 hours to full charge (using AC adapter, instrument turned off).

Total Run Time (Single battery charge)

Minimum 24 hours @ 300 second timebase at 100 ml/min flow rate. Run time may vary due to PM concentrations.

Operation Environment

0 ~ 40 °C operating, non-condensing.